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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,499	09/28/2005	Moelle Christoph	2133.084USU	5295

27623 7590 04/03/2009

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EXAMINER	
XU, LING X	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
04/03/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,499	CHRISTOPH ET AL.	
	Examiner	Art Unit	
	Ling Xu	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-10 and 24-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 4-5, 7-10 and 24-31* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4-5, 7, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Ando et al. (EP 0548972).

Ando discloses a process of forming a first (functional) layer comprising tin and silicon or other elements such as zirconium and a second (intermediate) layer comprising a nitride, an oxynitride, or an oxide of metal such as titanium, zirconium, chromium with a thickness of 20-100A (2-10nm) (col. 4, lines1-60 and col. 5, lines 1-60). The process comprises steps of providing a glass substrate and a metal target in a vacuum system and sputtering the metal target to form the first layer, the process is then switched (interrupted) to a different process step to form the intermediate layer. After the intermediate layer is formed, the process is switched back to the same process condition to form a third layer which is the same as the first layer. The metal target used for forming the first and third layer is a pure metal target and may comprise chromium (col. 4, lines 1-60).

Ando discloses the coated substrate comprising the same layered structure including the same intermediate layer as claimed, accordingly, the same intermediate layer would also have the same properties such as being capable of increasing the transmittance and/or reflectance of the functional metal layer as recited in claim 1.

Claim Rejections - 35 USC § 103

2. Claims 2, 8-10, and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al., as applied to claims 1 and 7 above, and further in view of Bartolomei et al. (EP-0516436).

As stated above, Ando discloses a process of forming a first (functional) layer comprising tin and silicon or other elements such as zirconium and a second (intermediate) layer comprising a nitride, an oxynitride, or an oxide of metal such as titanium, zirconium, chromium with a thickness of 20-100A (2-10nm) (col. 4, lines1-60 and col. 5, lines 1-60). The process comprises steps of providing a glass substrate and a metal target in a vacuum system and sputtering the metal target to form the first layer, the process is then switched (interrupted) to a different process step to form the intermediate layer. After the intermediate layer is formed, the process is switched back to the same process condition to form a third layer which is the same as the first layer. The metal target used for forming the first and third layer is a pure metal target and may comprise chromium (col. 4, lines 1-60).

Ando discloses the coated substrate comprising the same layered structure including the same intermediate layer as claimed, accordingly, the same intermediate layer would also have the same properties such as being capable of increasing the transmittance and/or reflectance of the functional metal layer as recited in claims 29-31.

Ando does not disclose the use of microwave plasma into the vacuum chamber to oxidize the functional layer and the use of rotating drum to rotate the substrate as recited in claims 2, 8, 10, and 25-31.

Bartolomei teaches a magnetron sputtering process for coating a substrate with a functional layer in a vacuum chamber, which housing a rotary drum (page 3, lines 30-55), wherein a substrate is provided by rotary drum to a metal target. The metal target is sputtered the metal on the substrate to form a metal film layer. The sputtering step is interrupted when the coated substrate is carried into a plasma region. An oxygen-rich microwave plasma is introduced into the vacuum chamber to oxidize the metal film to form a dielectric. The sequence can be repeated through rotation of the drum to build a dielectric film of a desired thickness and by providing additional sputter target-plasma generating devices, multilayer films of various materials can be applied to the substrate.

Bartolomei also teaches that the process is capable of achieving higher sputter rates (page 4, lines 50-55) and avoiding arcing at the target surface (page 2, lines 10-15).

Therefore, it would have been obvious to one of ordinary skill in the art to use the process as taught by Bartolomei to form the Ando's functional and the intermediate layers in order to improve the sputtering process and achieve a higher sputter rate.

Allowable Subject Matter

3. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments filed 3/13/2009 have been fully considered but they are not persuasive.

Applicant argues that Ando discloses a glass substrate 1, a metal oxide film 2, a functional film 3, and a second metal oxide film. However, Ando also fails to disclose or suggest that the functional film 3 is a "metal oxide intermediate layer" as claimed.

As stated above, Ando discloses a process of forming a first (functional) layer comprising zirconium and a second (intermediate) layer comprising an oxide of metal such as titanium, zirconium, or chromium with a thickness of 20-100A (2-10nm) (col. 4, lines1-60 and col. 5, lines 1-60). The process comprises steps of providing a glass substrate and a metal target in a vacuum system and sputtering the metal target to form the first layer, the process is then switched (interrupted) to a different process step to form the intermediate layer. After the intermediate layer is formed, the process is switched back to the same process condition to form a third layer which is the same as the first layer. The metal target used for forming the first and third layer is a pure metal target and may comprise chromium (col. 4, lines 1-60).

Accordingly, Ando discloses a layered structure comprising a glass substrate 1, a functional metal film 2, a metal oxide intermediate layer 3, and a second metal functional film. Ando anticipates the "metal oxide intermediate layer" as claimed.

Applicant also argues that Bartolomei merely discloses sputtering of metal oxide layers, but fails to disclose or suggest sputtering such metal oxide layers as an intermediate layer between first and second sub-layers of a functional metal layer as claimed.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As stated above, Ando discloses the process as recited in claims 1, 4-5, 7 and 24. Ando meets the limitation that the coated substrate comprising the "metal oxide intermediate layer" between the first and the second sub-layers of the functional metal layer as claimed. The combination of Ando and Bartolomei discloses the process recited in the remaining claims 2, 8-10, and 25-31.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling Xu whose telephone number is 571-272-7414. The examiner can normally be reached on 8:00 am- 4:30 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ling Xu
Primary Examiner
Art Unit 1794

/Ling Xu/
Primary Examiner, Art Unit 1794

lx
March 30, 2009